



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,620	07/11/2003	Keith D. Trott	RTN-141PUS	2919
22494	7590	10/07/2005	EXAMINER	
DALY, CROWLEY, MOFFORD & DURKEE, LLP SUITE 301A 354A TURNPIKE STREET CANTON, MA 02021-2714			WIMER, MICHAEL C	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

9/C

<b>Office Action Summary</b>	<b>Application No.</b> 10/617,620	<b>Applicant(s)</b> TROTT ET AL.	
	<b>Examiner</b> Michael C. Wimer	<b>Art Unit</b> 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/1/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8,10-12,15-17,19,22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Nester (4500887).

Regarding Claims 1-8,10-12,15-17,19,22 and 23, in Figure 3, for example, Nester shows a pair of fin-shaped substrates 56,58 spaced apart from one another, each having a transition section 60 and a feed surface (within region 62); a balanced symmetrical feed having a pair of RF feed lines (both top and bottom conductors within region 62) adjacent to and EM-coupled to one of the feed surface 56,58; wherein the pair of RF lines (at region 62) forms a signal null point adjacent the transition sections, because the electric field is launched from the corresponding sections and the notch radiator. Regarding Claim 2, the cavity is shown in Fig. 5 surrounding the feeding portions from which the notches extend. Regarding Claim 5, the out of phase condition occurs naturally because of the balanced condition and launching of the wave. Figure 5 also shows the notches arranged as claimed in Claims 10-12 and 15-17. The TEM mode to Floquet mode is deemed to occur simply by virtue of the balanced structure feeder and finline launching of the wave as recited in Claims 22 and 23.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9,13,14,18,20,21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nester (4500887).

Regarding Claims 9,18 and 24, it would have been obvious to the skilled artisan to employ the radiating elements of a height less than a quarter wavelength at the lowest operating frequency by virtue of tuning the transmitter below resonance. The radiators will be less than the wavelength at the lowest operating frequency in the band.

Regarding Claims 13,14,20 and 21, the region 60 in Nester is designed to be connected to a coaxial line and therefore forms an unbalanced (coaxial) input to balanced output at region 64. A skilled artisan recognizes such a region as unbalanced because of the stripline feeding arrangement.

***Response to Arguments***

5. Applicant's arguments filed 07/01/2005 have been fully considered but they are not persuasive. Specifically, the fin-shaped conductive patterns/metallizations are certainly deemed to be substrates and they are spaced from each other via the dielectric substrate 32 (Fig. 2). The feeding of the finlines is not as in the prior art

Art Unit: 2828

Figure 1, where a strip traverses a slotline. The feeders connect at the edge of the board directly to the ends of the patterns. The finline construction here forms an inherent balun and Nester clearly states that the region 62 is balanced, for launching the EM energy into the finline. The signal null point occurs because the lines in region 62 are balanced, having equal and opposite currents. One can see from Fig. 3 that the top and bottom lines in region 62 are a sort of "twin-lead", being essentially the same dimensions and carrying the currents as set forth. Applicant's arguments in the second paragraph on page 10 of the response are not at all understood when comparing the structure of the balanced region 62. That region clearly defines what is claimed and performs as its name implies. There is no difference in nomenclature as used by Nester and applicant. Since all claimed structure is shown in the prior art of record and obviousness has been clearly set forth, it is not seen how the claims at hand patentably define over the known art. Therefore, the rejections stand.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

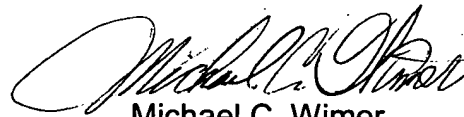
Art Unit: 2828

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wimer whose telephone number is (571) 272-1833. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun O. Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Michael C. Wimer  
Primary Examiner  
Art Unit 2828

MCW  
9/28/2005

Appendix:

Replacement Sheet for FIG. 2 (1 sheets) are attached.



*Drawing  
Change  
approved  
by Examiner  
Jing*



Appl. No. 10/617,620

Replacement Sheet

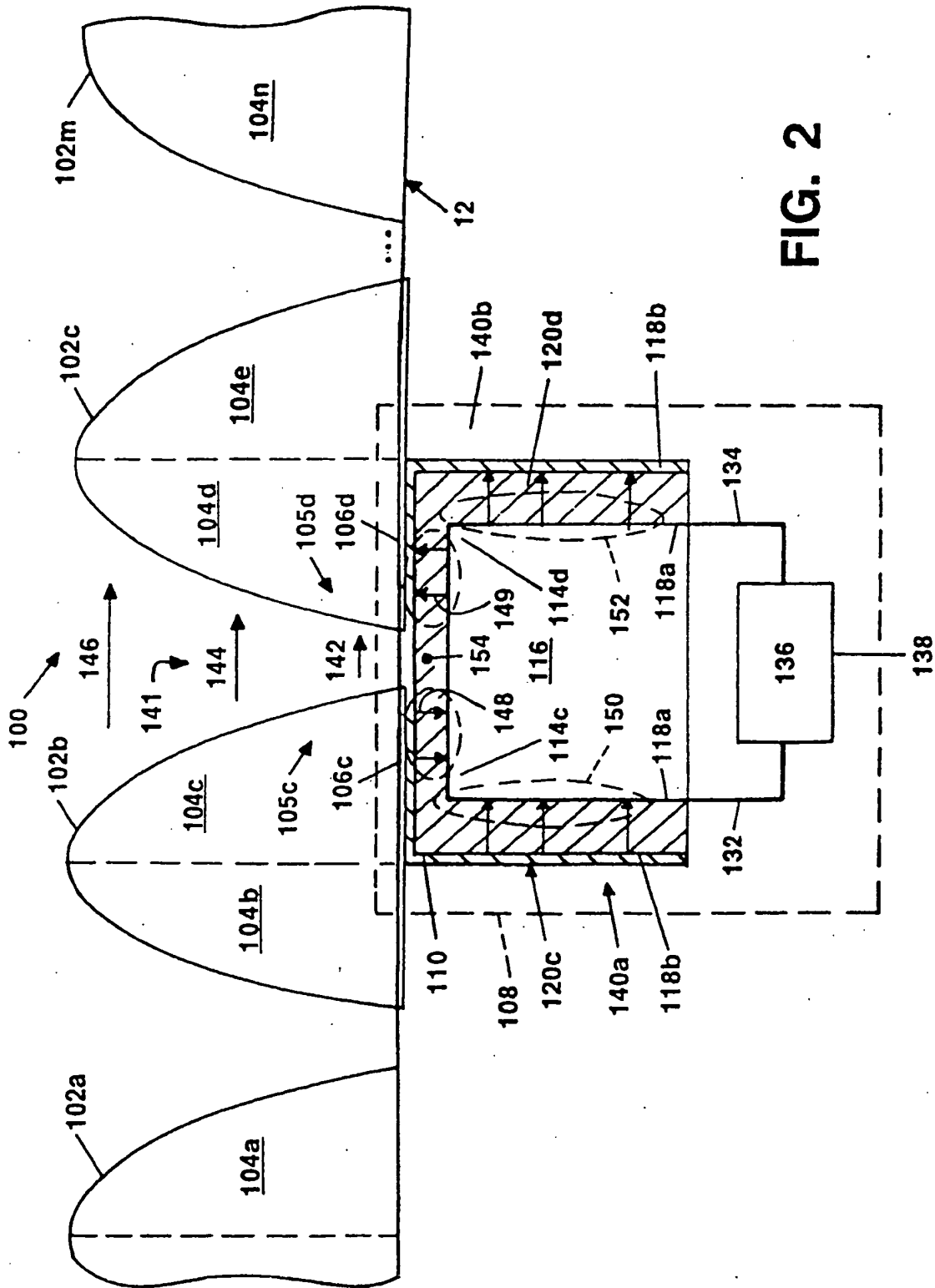


FIG. 2